

# Saturday Magazine.

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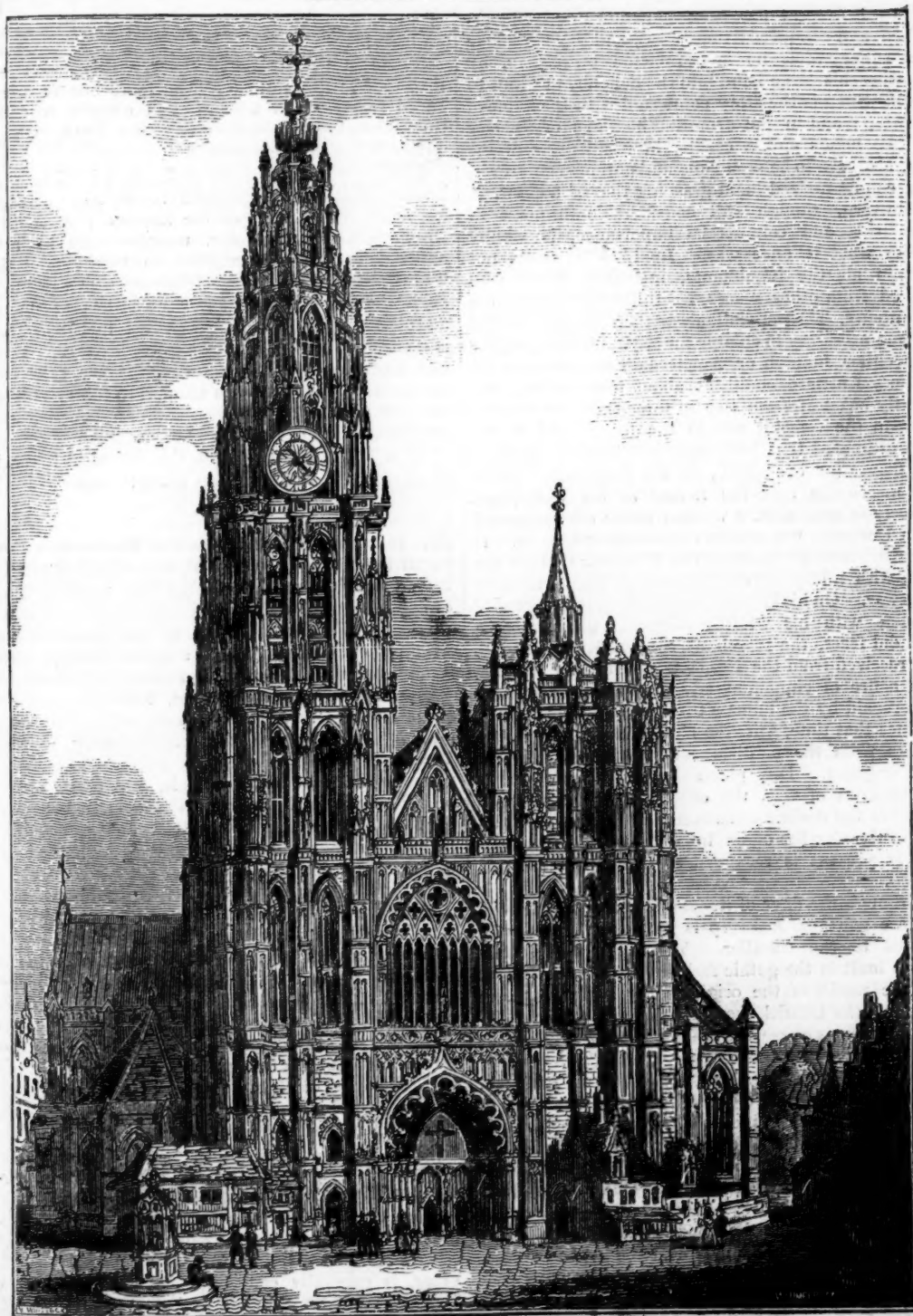
NOVEMBER

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ONE PENNY.

UNDER THE DIRECTION OF THE COMMITTEE OF GENERAL LITERATURE AND EDUCATION,  
APPOINTED BY THE SOCIETY FOR PROMOTING CHRISTIAN KNOWLEDGE.

ANTWERP CATHEDRAL.



## ANTWERP CATHEDRAL.

ANTWERP, or, as it is called by the French, *Anvers*, is an ancient and extensive city of the Netherlands, standing on the east side of the river Scheldt. Its name, which, in the language of the country, is *Antwerpen*, (or *Hand-thrown*.) has been explained by a strange and romantic legend. A cruel giant, it is said, dwelt in a castle on the banks of the Scheldt, on the spot now occupied by Antwerp. He demanded enormous tribute from those who came within his power; and cutting off the right hand of each person who resisted him, he threw it into the river. Brabon, however, a valiant man, (from whose name the word *Brabant* has been sometimes derived,) attacked and conquered the tyrant, and having made him suffer what he had inflicted on others, by throwing his large hand into the Scheldt, put him to death. Such is the story connected with the name of Antwerp; and in the armorial bearings of the city are two hands and a castle; in some parts of the city, also, are to be seen rude and antique sculptures, of a common-sized hand grasping that of a giant.

Antwerp, though still considerable in point of population and commercial importance, is wholly unlike what it once was. In 1543, it could not contain all the inhabitants, including those who flocked from other places, led thither by its various advantages. The population was then 200,000, and it became necessary to enlarge the city. Ranking higher than either London or Amsterdam as a commercial seaport, Antwerp could at about that period, frequently boast of from two to three thousand vessels lying in the Scheldt and in the docks; and it has been estimated that 5000 persons assembled daily in the *Bourse* (or exchange), for the purposes of trade. The merchants were the richest in the world, and princely in their acts, if we may quote the celebrated John Daens as a specimen of his fellow-traders. It is stated that he assisted the Emperor Charles the Fifth with a loan of two millions of ducats to carry on a war. On his return, the monarch condescended to dine with his wealthy subject; when, after a splendid feast, the merchant cancelled the bond he had received from the Emperor Charles, by burning it in a fire of cinnamon, adding, that he was more than repaid by the honour the King had done him.

Since that time, Antwerp has suffered many severe shocks from the political conflicts in which it has been engaged. Few places have felt more deeply the miseries of war, the effects of which may be traced in the decline of its commerce, and the reduction in the number of its inhabitants. The population at present is reckoned at between 60,000 and 70,000.

Although the days of its grandeur as a commercial city are gone by, Antwerp is a place of uncommon interest to the traveller. The large and stately houses built in the gothic fashion, the *Bourse* (which was the model of the original Royal Exchange, in London), the Citadel, the Basins, the Museum of Pictures, Rubens's house, the noble wide street, (*Place De Mer*.) and various fine churches, successively claim attention. But the richest ornament of Antwerp, and the chief object of admiration in the eyes of strangers, is the magnificent CATHEDRAL, or Church of Notre Dame. As a gothic structure, for beauty of design and execution, it is unequalled in the Low Countries, perhaps in the world. Charles the Fifth was so struck with the delicacy and strength of masonry displayed in the construction of the tower, that he said, it ought, if possible, to be kept in a case, and shown only once a year. Those of our readers who have seen this beautiful building, will acknow-

ledge, that in the view at the head of our present number, the artist has done his work with fidelity and spirit, and conveyed an accurate idea of the grand west front. The tower, or spire, was commenced by the architect Amelius in 1422, and finished in 1518. It is estimated by persons on the spot to be 466 feet high, including the cross at the top.

In 1540, the *carillon*, or peal of sixty bells, was added; but the great bell, weighing upwards of 16,000 pounds, which is now never used, is of greater antiquity, having been placed there in 1440. It took sixteen men to ring it. At the present day, the bells of the tower constantly remind people of the lapse of time, chiming forth cheerily every *half-quarter* of an hour!

Twice in the sixteenth century this tower was threatened with mischief from fire, but it experienced scarcely any injury; and since that period the precaution of keeping a constant supply of water within it has been adopted.

In the lower part of the wall, on a level with the houses which have gathered round it, is let in, in *low relief*, the likeness of the famous blacksmith of Antwerp, Quintin Matsys, together with his arms and epitaph. The inscription, in Latin, states that "Love changed him from a blacksmith to a painter;" or, in the original and more poetical terms; "From a Mulciber to an Apelles." He died in 1529. There is a current story of his having left his former trade, and learned the art of painting, for the sake of a young lady, whom he was allowed to marry only on that condition. The Antwerp Museum contains some exquisite works of Quintin Matsys.

At a short distance from the cathedral-tower, in an open space, is the famous pump, formerly a well, the ornamental iron-work of which was executed by Quintin's hammer, and is more curious than beautiful. It is well known that another tower, similar and parallel to that just described, was intended to have been erected; but this design was never fulfilled, owing to want of opportunity and means. Nor can we regret the circumstance; as the present tower, with its extraordinary and singular beauty, has a much finer effect by standing alone.

The church is 500 feet long, 230 wide, and 360 high. It has, from time to time, suffered considerable injury from fire and revolutionary violence. The most serious mischief occurred in 1797, when several gold and silver vessels, and other highly-prized treasures belonging to the cathedral, were carried off or destroyed. In 1810 important repairs and improvements took place, and, in 1816, some of the most valuable paintings of the Flemish school, which had been removed to France, were replaced.

On entering by the west door, the vast expanse is strikingly grand. On the right (the south) side, is a fine monument of Ambrose Capello, a bishop of Antwerp. Further on stands the richly-carved pulpit, the work of Verbruggen, whose wonderful skill in this particular line of art has been shown in other churches in Antwerp. In advancing towards the choir, are seen several chapels, altars, and confessionals, adorned with elaborate sculpture; many of the faces of angels, carved in oak, being of great beauty. In the centre of the cathedral is the lofty dome, from the sides of which light is admitted, displaying a richly-coloured but confused picture of the Virgin, surmounted by a choir of Angels. Nearer to the choir and on the wall facing the west, are the two magnificent pictures, by Peter Paul Rubens. The most celebrated of these productions, the *Descent from the Cross*, is generally considered his chief work; it is indeed a masterly painting, and seems to possess all

its original freshness of colouring: the two wings (volets), which are pictures attached to it by hinges, and are much narrower, though of the same height, are by the same great artist, and represent *The Purification*, and *The Visitation*. The companion to *The Descent*, which is on the left as you approach the choir, is *The Elevation of the Cross*, the wings of which picture relate to the same awful subject.

Our limits do not permit us to enter as fully as might be wished into the beauties of this cathedral, and we must be content with merely mentioning, in addition, a few which are well worthy of notice. Among the paintings are an altar-piece by Rubens, called *The Ascension of the Virgin*; *Our Lord in the midst of the Doctors in the Temple*, by Frank; *The Disciples at Emmaus*, by Herreyns; *The Marriage at Cana*, by De Vos. On the south-east side are monumental slabs to Christopher Plantin, a famous printer, and to his son-in-law and successor, Moretus, both ornamented with pictures; and in the various chapels are other curious monuments.

Antwerp abounds in the works of Rubens, who, though a native of Cologne, lived and died in this city. He and his family are buried in the church of St. James. In the chapel containing his ashes, is a noble picture, representing himself as St. George, and all the members of his family under a sacred allegory. One of his noblest efforts, however, appears in the collection at the Museum; it is that of *Our Saviour crucified between the two Thieves*.

Antwerp still bears marks of the injuries it received during the revolution of 1830, as well as more recently on the occasion of the siege by the French. The citadel, rendered so famous by the latter event, was constructed by Paciotti under the Duke of Alva in 1568, and has always been considered an excellent specimen of the old style of fortification. In consequence of the late siege, it has sustained dreadful damage, and the interior presents a scene of ruin and desolation. English parties are admitted to view it by an order from the governor, which is granted after their applying to the British Consul at Antwerp.

About eighty years ago a motion was made in Parliament for raising and embodying the Militia, and, for the purpose of saving time, to exercise them on Sundays. When the motion was likely to pass, an old gentleman stood up and said, "Mr. Speaker, I have one objection to this,—I believe in an old book called the Bible." The members looked at one another, and the motion was dropped.—WESLEY.

ABOVE all subjects study thine own self. For no knowledge that terminates in curiosity or speculation, is comparable to that which is of use, and of all useful knowledge, that is most so, which consists in the due care, and just notions of ourselves. This study is a debt which every one owes himself. Let us not then be so lavish, so unjust, as not to pay this debt, by spending some part at least, if we cannot all, or most of our time and care, upon that which has the most indefeasible claim to it. Govern your passions, manage your actions with prudence, and where false steps have been made, correct them for the future. Let nothing be allowed to grow headstrong and disorderly; but bring all under discipline. Set all your faults before your eyes, and pass sentence upon yourself, with the same severity as you would do upon another, for whom no partiality hath biased your judgment.—ST. BERNARD.

WHEN feelings of wonder at the magnitude of the universe, and the harmony perceptible in all its parts, fill the mind, at such a moment, let us remember that He who made all these glorious objects and still keeps them in their courses, nevertheless came down from heaven, took upon Him the form of a servant, and ended a life of sorrow by a death of pain, that he might reconcile a fallen world to an offended God.—HALL'S *Astronomy*.

### THE BISON, OR BONASSUS OF NORTH AMERICA.

At the period when the Europeans began to make settlements in North America, this animal was occasionally met with on the Atlantic coast; but even then it appears to have been rare to the eastward of the Apalachian Mountains. Theodat, whose history of Canada was published in 1636, merely says that he was informed that bulls existed in the remote western countries. Warden mentions, that at no very distant date, herds of them existed in the western parts of Pennsylvania, and that as late as the year 1766 they were pretty numerous in Kentucky; but they have gradually retired before the white population, and are now, he says, rarely seen to the south of the Ohio, or on the east side of the Mississippi. They still exist, however, in vast numbers, and roam in countless herds, over the prairies that are watered by the Arkansas, La Platte, Missouri, and upper branches of the Saskatchewan and Peace rivers. Great Slave Lake, in latitude 60°, was at one time the northern boundary of their range; but of late years, according to the testimony of the natives, they have taken possession of the flat limestone districts of Slave Point, on the north side of that lake, and have wandered to the vicinity of Great Marten Lake, in latitude 63° or 64°. As far as I have been able to ascertain, the limestone and sandstone formations lying between the Great Rocky Mountain ridge and the lower eastern chain of primitive rocks, are the only districts in the fur-countries that are frequented by the Bison.

In these comparatively level tracts, there is much prairie land, on which they find good grass in summer; and also, many marshes overgrown with bulrushes and *carices*, which supply them with winter food. Salt springs and lakes also abound on the confines of the limestone, and there are several well-known *salt-licks*, where Bisons are sure to be found at all seasons of the year. They do not frequent any of the districts formed of primitive rocks. Their migrations to the westward were formerly limited by the Rocky Mountain range, and they are still unknown in New Caledonia, and on the shores of the Pacific to the north of the Columbia River; but of late years they have found out a passage across the mountains near the sources of the Saskatchewan, and their numbers to the westward are said to be annually increasing. In 1806, when Lewis and Clark crossed the mountains at the head of the Missouri, Bison skins were an important article of traffic between the inhabitants on the east side, and the natives to the westward. Further to the southward, in New Mexico and California, the Bisons appear to be numerous on both sides of the Rocky Mountain chain.

The Bison does not appear to have excited much attention in Europe until lately, when several specimens were exhibited in England, under the attractive title of *Bonassus*, which, though described by the ancients, was asserted to have been lost to the moderns, until recognised in the American animal. The American Bison has in fact much resemblance to the *Aurochs* of the Germans, identified by Cuvier with the *Bonassus* of Aristotle, the *Bison* of Pausanias and Pliny, and the *Urus* of Cæsar, and which, down to the reign of Charlemagne, was not rare in Germany, but is now nearly confined to the hilly country lying between the Caspian and Black Sea.

The Bisons wander constantly from place to place, either from being disturbed by hunters, or in quest of food. They are much attracted by the soft tender grass which springs up after a fire has spread over





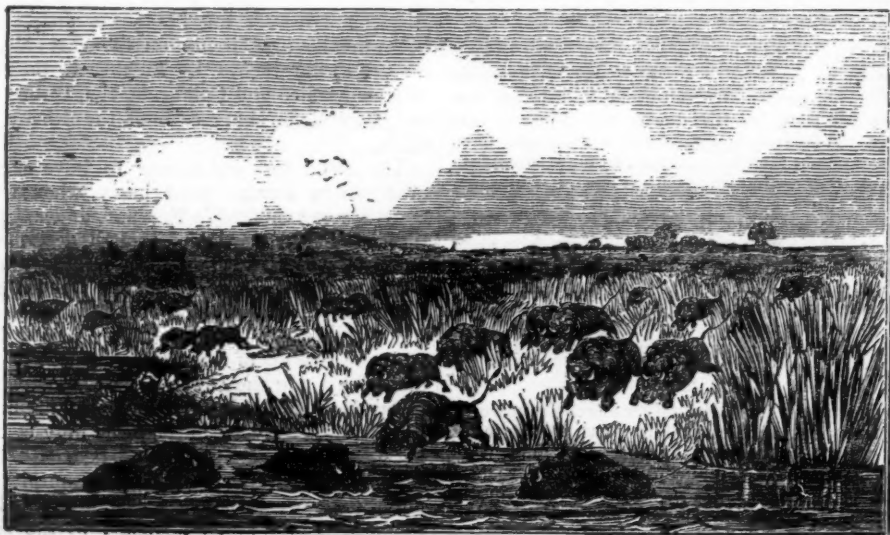
THE BISON, OR BONASSUS

the prairie. In winter, they scrape away the snow with their feet, to reach the grass. The bulls and cows live in separate herds for the greater part of the year; but at all seasons, one or two bulls generally accompany a large herd of cows. The Bison is in general a shy animal, and takes to flight instantly on winding an enemy, which the acuteness of its sense of smell enables it to do from a great distance. They are less wary when they are assembled together in numbers, and will then often blindly follow their leaders, regardless of, or trampling down the hunters posted in their way. It is dangerous for the hunter to show himself after having wounded one, for it will pursue him, and although its gait may be heavy and awkward, it will have no difficulty in overtaking the fleetest runner.

Many instances might be mentioned of the tenaciousness with which this animal pursues his revenge; and I have been told of a hunter having been detained for many hours in a tree by an old bull, which had taken his post below to watch him. When it contends with a dog, it strikes violently with its fore-feet, and in that way proves more than a match for an English bull-dog. The favourite Indian method of killing the Bison, is by riding up to the fattest of the herd on horseback, and shooting it with an arrow. When a

large party of hunters are engaged in this way the spectacle is very imposing, and the young men have many opportunities of displaying their skill and agility. The horses appear to enjoy the sport as much as their riders, and are very active in eluding the shock of the animal, should it turn on its pursuer. The most generally practised plan, however, of shooting the Bison, is by crawling towards them from to leeward; and in favourable places, great numbers are taken in pounds. When the Bison runs, it leans very much to first one side for a short space of time and then to the other, and so on alternately.

The flesh of a Bison, in good condition, is very juicy and well flavoured, much resembling that of well-fed beef. The tongue is considered a delicacy, and may be cured so as to surpass in flavour the tongue of an English cow. The hump of flesh covering the long spinous processes of the first dorsal vertebrae is much esteemed. It is named *bos* by the Canadian voyagers, and *wig* by the Orkney men in the service of the Hudson's Bay Company. The wig has a fine grain, and when salted and cut transversely, it is almost as rich and tender as the tongue. The fine wool which clothes the Bison renders its skin, when properly dressed, an excellent blanket; and they are valued so



HERD OF BISON CROSSING A RIVER.



INDIAN MODE OF DESTROYING THE BISON.

highly, that a good one sells for three or four pounds in Cahada, where they are used as wrappers by those who travel over the snow. The wool has been manufactured in England into a remarkably fine and beautiful cloth, and in the colony of Osnaboyna on the Red River, a warm and durable coarse cloth is made of it. Much of the pemmican used by the voyagers attached to the fur-companies, is made of Bison-meat, procured at their posts on the Red River and Saskatchewan. One Bison cow in good condition furnishes good meat and fat enough to make a bag of pemmican weighing 901 lbs. The Bisons which frequent the woody parts of the country form smaller herds than those which roam over the plains, but are said to be individually of a greater size.—Dr. RICHARDSON'S *Arctic Zoology*.

The herds of Bisons wander over the country in search of food, usually led by a bull most remarkable for strength and fierceness. While feeding, they are often scattered over a great extent of country, but when they move in mass, they form a dense and almost impenetrable column, which, once in motion, is scarcely to be impeded. Their line of march is seldom interrupted even by considerable rivers, across which they swim without fear or hesitation, nearly in the order that they traverse the plains. When flying before their pursuers, it would be in vain for the foremost to halt, or attempt to obstruct the progress of the main body, as the throng in the rear still rushing onward, the leaders must advance, although destruction awaits the movement. The Indians take advantage of this circumstance to destroy great quantities of this favourite game, and, certainly, no mode could be resorted to more effectually destructive, nor could a more terrible devastation be produced, than that of forcing a numerous herd of these large animals, to leap together from the brink of a dreadful precipice, upon a rocky and broken surface, a hundred feet below.

When the Indians determine to destroy Bisons in this way, one of their swiftest-footed and most active young men is selected, who is disguised in a Bison-skin, having the head, ears, and horns adjusted on his own head, so as to make the deception very complete, and thus accoutred, he stations himself between the Bison-herd and some of the precipices, which often extend for several miles along the rivers. The Indians surround the herd as nearly as possible, when, at a given signal, they show

themselves, and rush forward with loud yells. The animals being alarmed, and seeing no way open but in the direction of the disguised Indian, run towards him, and he, taking to flight, dashes on to the precipice, where he suddenly secures himself in some previously ascertained crevice. The foremost of the herd arrives at the brink; there is no possibility of retreat, no chance of escape; the foremost may, for an instant shrink with terror, but the crowd behind who are terrified by the approaching hunters, rush forward with increasing impetuosity, and the aggregated force hurls them successively into the gulf, where certain death awaits them.

These animals have been seen in herds of three, four and five thousand, blackening the plain as far as the eye could view. At night, it is impossible for persons to sleep near them who are unaccustomed to their noise, which, from the incessant lowing and roaring of the bulls, is said to resemble distant thunder. Although frequent battles take place between the bulls, as among domestic cattle, the habits of the Bison are peaceful and inoffensive, seldom or never offering to attack man or other animals, unless outraged in the first instance."—Dr. GODMAN

THE construction of this world appears more wonderful, the more it is contemplated; and the same transcendent and divine power which framed it, continues to preserve it as it is; so firm, so unbroken, so undecaying, and so beautiful as we every where discern it to be. The creating power continues to act as the conserving power; a superintending Providence preserves what it has made, his power operates continually, and is essential to the subsistence of created things. Creation was a miracle. Its subsistence is not less so. "Marvellous are thy works O Lord God Almighty," when we consider thy heavens even the works of thy fingers, the moon and the stars which Thou hast ordained!—SHARON TURNER.

EVERY good thing that could pamper the appetite as far as their means went, was likewise put in requisition, as with us in England, at this season. Though they thought of themselves, however, many of the peasants did not forget the inferior order of the creation. Indeed, it was an almost universal custom among them, to expose a sheaf of unthrashed corn on a pole in the vicinity of their dwellings, for the poor sparrows and other birds, which at this inclement period of the year must be in a state of starvation. They alleged as their reason for performing this act of beneficence, that all creatures should be made to rejoice on the anniversary of Christ's coming among us mortals.—LLOYD'S *Field Sports of the North*.

## ECCLESIASTICAL ENDOWMENTS.

THE tendency of endowments has often been discussed. Some are inclined to think they are not beneficial to the cause of Religion, and it has been argued, that a minister of the Word may be safely left to the generosity of his flock; that a congregation will never suffer an active and pious clergyman to be insufficiently provided for.

The name of Oberlin is now proverbial, and synonymous with that of an eminent and laborious pastor. At the Revolution, Oberlin, like the rest of the established clergy of France, was deprived of his scanty income. This was in 1789. At first, his parishioners came forward with generous alacrity, and declared that their excellent minister should be none the worse; that they would raise 1400 francs (or about 56*l*.) a year for him at least. The first year, they subscribed a purse of 1133 francs; the second year, their liberality fell down to 400 francs, or 16*l*. The pastor saw how things were going on, and requested that there might be no annual collections for him; he was unwilling to appear to be drawing from the poor or the reluctant; he would leave it entirely to their free-will and unsolicited offerings; they knew the way to his house, he said, and might bring to him what and when they pleased.

In 1794, few as were Oberlin's wants, his own resources and his parishioners' bounty had so far failed him, that he was obliged to undertake the charge of ten or twelve pupils for his subsistence! —GILLY's *Memoir of Felix Neff*.

OUR passage through life is like that of the children of Israel through the Red Sea. Doubt and darkness are before us, unless God enlighten our path: the enemy presseth upon us behind, unless God check his pursuit: the waters stand in heaps on each hand of us; if they open a path to us, it is through the word of His power, which were he to recall, the water-flood stands ready to overflow us, the deep to swallow us up, the pit to shut her mouth upon us. Amidst perils, which thus encompass us round on every side, what continual need have we to look up to the Almighty for aid and support.—TOWNSON.

THE moon, a softer but not less beautiful object than the sun, returns and communicates to mankind the light of the sun, in a gentle and delightful manner, exactly suited to the strength of the human eye; an illustrious and most beautiful emblem, in this and several other respects, of the divine Redeemer of mankind; who, softening the splendour of the Godhead, brings it to the eye of the understanding, in a manner fitted to the strength of the mind, so that, without being overwhelmed or distressed, it can thus behold "the light of the knowledge of the glory of God in the face of Jesus Christ."—DWIGHT.

If we would have our hearts brought off to God, and the serious pursuit of eternal things, let us daily study the vanity of this world. Study it, did I say? There seems little need of study or deep search into this matter. This is a thing that thrusts itself upon our thoughts, so that we must think of it, unless we thrust it from us.—BISHOP BULL.

THE power, indeed, of every individual is small, and the consequence of his endeavours imperceptible, in a general prospect of the world. Providence has given no man ability to do much, that something might be left for every man to do. The business of life is carried on by a general co-operation; in which the part of any single man can be no more distinguished, than the effect of a particular drop when the meadows are floated by a summer-shower: yet every drop increases the inundation, and every hand adds to the happiness or misery of mankind.—DR. JOHNSON.

THE sorrows of the wicked are as a poison to destroy; those of the saints are as a medicine tempered by God's own hand for the restoration of health.—JONES of Nayland.

BY THE WATERS OF BABYLON.

WRITTEN BY THOMAS CAREW, WHO DIED ABOUT 1639.

SITTING by the streams that glide,  
Downe by Babel's tow'ring wall,  
With our tears wee filde the tyde,  
Whilst our myndful thoughts recall  
Thee, O Sion, and thy fall.

Our neglected harps unstrunge,  
Not acquainted with the hand  
Of the skillfull tuner, hunge  
On the willow trees that stand  
Planted in the neighbour land.

Yett the spightfull foe commands  
Songs of mirthe, and bids us laye  
To dumbe harps our captive hands,  
And to scoffe our sorrowes, say,  
Sing us som sweet Hebrewe lay.

But say wee, our holye strayn  
Is to pure for heathen land,  
Nor may wee God's himmes prophane  
Or move eyther voyce or hand  
To delight a savage band.

Holye Salem, yf thy love  
Fall from my forgetfull harte,  
May the skill by which I move  
Strings of musicke, tun'd with art,  
From my wither'd hand departe.

May my speechless tongue give sound  
To noe accents, but remayne  
To my prison rooffe fast bound  
If my sad soul entertayne  
Mirth, till thou rejoyce agayne.

In that day remember, Lord,  
Edom's breed, that in our groanes  
They triumph; with fier and sword  
Burn their cittie, herse their bones  
And make all one heape of stones.

Cruell Babel, thou shalt feele  
The revenger of our groanes,  
When the happie victor's steele,  
As thine our's shall hew thy bones,  
And make the one heape of stones.

Men shall bless the hand that teares  
From the mother's soft embraces  
Sucking infants, and besmeares  
With their braynes, the rugged faces  
Of the rockes, and stony places.

THE sweet charities of life, sympathy, affection, and benevolence, are the blessings blended with sorrow, sickness, and infirmity; and from the restraints of temper, and mutual forbearance, we practise to each other, arise the kindness and good-will which are the charms of social life.—MRS. KING.

I HAVE a rich neighbour that is always so busy that he has no leisure to laugh; the whole business of his life is to get money, and more money, that he may still get more and more money: he is still drudging on, and says, that Solomon says "The diligent hand maketh rich:" and it is true indeed; but he considers not that it is not in the power of riches to make a man happy: for it was wisely said by a man of great observation, "That there be as many miseries beyond riches as on this side them:" and yet God deliver us from pinching poverty: and grant, that having a competency, we may be content and thankful. Let us not repine, or so much as think the gifts of God unequally dealt, if we see another abound with riches; when, as God knows, the cares that are the keys that keep those riches, hang often so heavily at the rich man's girdle that they clog him with weary days and restless nights, even when others sleep quietly. We see but the outside of the rich man's happiness: few consider him to be like the silk-worm, that, when she seems to play, is at the very same time, spinning her own bowels, and consuming herself. And this many rich men do: loading themselves with corroding cares to keep what they have already got. Let us, therefore, be thankful for healthened competence, and above all, for a quiet conscience.—ISAAC WALTON.



## FAMILIAR ILLUSTRATIONS OF NATURAL PHENOMENA.

## No. IV. THE GREAT CURRENT OF THE ATLANTIC, CALLED THE GULF STREAM.

PERSONS are often prevented from inquiring into a subject, under the impression that it is too difficult for them to comprehend; when a very little attention would render it very easy.

Every body, who has observed the stream rushing through a mill-dam into a wide basin of water, must have noticed, that a great part of the water is in a state of constant circulation. If a chip of wood is thrown into the current, it is carried away at first very rapidly, but afterwards gets to the edge of the stream, takes a circuit, and is possibly brought back nearly to the place where it was first thrown in. This revolving motion of the water is thus occasioned: the water next to that in the stream is dragged along with it; the removal of this causes a hollow, into which the water next to it runs; and this kind of motion is thus propagated throughout all the mill-pool.

Now this represents, on a small scale, a great natural phenomenon, called the Gulf Stream, because it was first observed in the Gulf of Florida, in the Atlantic Ocean. That particular current, however, is only part of an extensive circulation of all the waters in the great western basin.

To understand this, it must be observed, that the waters of the open ocean, between the tropics, have a constant motion from east to west. This is seen very evidently at the Cape of Good Hope, where the waters of the great Indian Ocean unite with the Atlantic. There is a constant current setting from east to west, so that ships require a strong westerly wind to stem it: and many fatal accidents have happened by ships being driven upon the western coast of Africa, when they thought themselves many leagues to the east of it, from not allowing for the westerly current. The motion of the waters in the free ocean, would be at the rate of ten miles in twenty-four hours, or about a quarter as fast as, upon an average, the principal rivers of Europe run.

Now, upon casting an eye upon the map of the Atlantic, it will be seen that this great stream of water, coming from the ocean round the south of the Cape of Good Hope, will run in about a north-westerly direction, until it comes upon the great dam formed by the coast of South America. The waters of the Atlantic, between the tropics, are themselves impelled by the same causes which create this current, and in the same direction; so that a vast body of water, arising from the united action of those currents, is heaped up against the shores of South America. The strength of this current falls upon that part of the coast which is to the north of the river Parabiba; and by the direction of the coast is sent on, in nearly a north-westerly direction, past the mouths of the great rivers, Amazon and Oronoco, where the waters of the current enter the Caribbean Sea. The island of Trinidad is placed here just in the heart of the stream; and the waters pour between that island and the main land with great rapidity, and then form a westerly current along the whole northern coast of South America. The effect of this current is seen in the distribution of land and water in that part of the globe. The islands of the West Indies seem to be those parts of a formerly connected continent, which have had strength enough to resist the continual force of the waves. And the isthmus of Darien is, as it were, the back-bone of a skeleton, of which the flesh and cartilages have been eaten away.

Along this isthmus the current of the western ocean is forced in a northerly direction; it meets with the turbid waves of the Mississippi, and proceeds to the southern extremity of Florida, so that its course is now turned nearly due east. Here it passes with great rapidity into the strait of Bahama, at the rate of *eighty miles in twenty-four hours*, or double the average rapidity of European rivers, and sometimes even with a velocity of *five miles an hour*, having now taken a nearly north-easterly direction.

We began by comparing the Gulf Stream to a mill-pool. To complete the resemblance at this point, we must suppose the stream which issues from the mill to be filled with *hot water*. For the great tropical current has been detained for a long time in the great hot gulf formed by the coast of Caraccas, the Mexican and Floridan coasts, and at length issues forth into the North Atlantic, at a temperature so greatly above the average heat of the ocean, that vessels navigating those seas, can tell within a few minutes the time of their entering the Gulf Stream by the sudden increase in the warmth of the water. This difference often amounts to nine, twelve, and fifteen degrees of Fahrenheit's thermometer, and sometimes to much more. Thus, on the bank of Newfoundland, the temperature of the cold water on the bank has been observed to be  $50^{\circ}$ , while that of the stream was  $72^{\circ}$ .

The breadth of the stream gradually increases after it leaves the straits of Bahama. Between Cape Biscaino and the bank of Bahama, the breadth is fifteen leagues. In latitude  $28^{\circ} 30' N.$  the breadth is seventeen leagues. In latitude  $41^{\circ} 25' N.$ , longitude  $67^{\circ} W.$ , it is eighty leagues wide; and having now met with a great arctic current, it is turned towards the East, at the southern extremity of the bank of Newfoundland, which Volney well denominates the *bar* at the mouth of this enormous marine river. The union of the *hot* current of water with the cold of the ocean and of the atmosphere is marked, at the bank of Newfoundland, by two phenomena. The current has expanded in width, and diminished in velocity. Hence, as in great floods, and at the mouths of rivers, the matter which had been sustained in the water during its rapid motion is now deposited, and in the course of years has formed the great bank of Newfoundland. Meanwhile, the water being relatively hot, the atmosphere which it brings with it contains copious vapours, which are precipitated, as soon as they meet with a colder current of air or water, and form those extraordinary banks of *fog*, which are, in the atmosphere of the bank of Newfoundland, what the bank itself is to the bottom of the ocean, a continual accumulation of matter brought from a distant region, to be there deposited.

The great current still continues onward to the East, and South-east to the Azores. At the westernmost of that group of islands it is a hundred and sixty leagues wide; and in latitude  $33^{\circ}$ , its southern edge is so near the northerly edge of the equinoctial current, running in the opposite direction, that a vessel can pass from one to the other in a day's sail. From the Azores, the current tends rather in a south-easterly direction, towards the Straits of Gibraltar, the Madeiras, and the Canaries. It continues to set towards the African coast, between Capes Cantin and Bodajor. In latitude  $25^{\circ} 26'$  the current sets *South*; is afterwards turned to the *South-west* by the trending of the coast by Cape Blanc, and soon after is again mixed with the equinoctial current; and proceeds to run again the same course.

Thus, between the parallels of  $11^{\circ}$  and  $44^{\circ} N.$  latitude, the waters of the Atlantic move in a per-



petual round, as regularly as a mill-sludge: the waste being supplied by a constant influx of water from the Indian seas round the Cape of Good Hope. If a bottle were thrown into the sea it would return to the same point, unless retarded by accidental causes, in little less than three years, having completed a circuit of 3800 leagues, at the rate of rather more than ten miles a day. Such a bottle, for instance, if sent adrift at the Canary Isles, would be floated to the coast of the Caraccas in thirteen months. Ten months more would take it round the Gulf of Mexico, and opposite the port of Havannah: and about forty or fifty days would then be sufficient to take it from the Gulf of Florida to the bank of Newfoundland: and perhaps ten or eleven months more would bring it to the coast of Africa.

This is more than mere theory. It is not possible to trace an object during the whole round. But in the year 1770, a vessel loaded with corn, from the little island of Lancerotte to Sainte Croix, in Teneriffe, was driven to sea with no one on board. The westerly current took it, and it was cast ashore on the American coast of Guayra, near the Caraccas.

There is still another branch of the Gulf Stream, very interesting to ourselves, which causes a north-east current upon the coasts of Great Britain and Norway. The effect of this current, aided probably by the prevalent westerly winds, is found in the much more rapid passage of ships from America to England, than in the opposite direction. Besides this, plants which are natives of the West India Islands and the continent of America, have been cast on shore on the Hebrides, and north-western coast of Scotland. The *Tilbury* was burnt some years since near Jamaica, and part of the wreck was carried by this current to the shores of Scotland.

We are probably reaping one indirect advantage from the Gulf Stream, in the comparative mildness of our climate, compared with other places, not only on the same parallel of latitude, but in the same position in respect to the sea. A constant current of water is setting upon us from the West. When that current has advanced as far as the bank of Newfoundland, we have seen that it has been found to be sometimes 22° hotter than the surrounding ocean; and it can be proved, that if this warm water is mixed with the colder water, the sensible heat of the whole is increased in proportion to the relative quantity of the warmer fluid. It is, therefore, in the highest degree probable, that we are greatly indebted to the Gulf Stream for the fact,

that the main temperature of England is sensibly higher than that of places which in other respects appear to be similarly situated. C.

In Cicero and Plato, and such other writers, I meet with many things wittily said, and things that have a manifest tendency to move the passions; but in none of them do I find these words, *Come unto me, all ye that labour and are heavy laden, and I will give you rest.*—ST. AUGUSTIN.

#### ANNIVERSARIES IN NOVEMBER.

TUESDAY, 5th.

1605 The Gunpowder Plot discovered.

WEDNESDAY, 6th.

ST. LEONARD still retains a place in our Calendars, though his history is neither so interesting nor so popular as that of many others. He was a French nobleman of high rank, who, being converted to Christianity, left his employ about the court, and sought leisure in retirement and seclusion to meditate on its holy mysteries. Clovis tried in vain to lure him back to court; to this he was inexorable; but, at his request, the king bestowed on him the privilege of releasing from captivity all whom he should deem worthy such indulgence; hence he is considered more especially the patron of prisoners.

1632 Battle of Lutzen gained by the Protestant States of Germany over the Imperialists, but imbittered by the untimely death of the gallant and virtuous Gustavus Adolphus.

1793 Philippe, Duc d'Orléans, agitator of the most desperate scenes in the French Revolution, perished on the scaffold.

1817 The Princess Charlotte, only child of George IV. died at Claremont.

THURSDAY, 7th.

1665 The first Gazette, or authorized account of public proceedings, was published at Oxford, where the court had retired on account of the plague, which raged in London.

1793 Gobel, Bishop of Paris, abjured the Christian religion, and publicly defied the sacred vestments; after which he assisted at the apotheosis of the goddess of reason, which was celebrated the same day in the Cathedral of Paris by the national convention. Gobel did not long enjoy his infamous notoriety, being one of fourteen victims sacrificed to the jealousy of the despot Robespierre.

SATURDAY, 9th.

LORD MAYOR'S DAY.—The day on which the chief magistrate of London takes possession of his office has, from time immemorial, been celebrated by processions and feasting in the city. During the dominion of the Romans, London was governed by a Prefect; under the Saxons, the Town and Port of London was subject to a Portreeve; and, in 1067, William the Conqueror, granted the first charter to the Portreeve and Burgesses, in conjunction with the Bishop. In the reign of King John the title of Portreeve was altered to that of Mayor; and the honourable distinction of Lord was bestowed by Richard II. on Sir William Walworth, for his eminent service in quelling Jack Straw's rebellion. The title of Lord has been retained by his successors. The Lord Mayor of London, in matters of mere form, takes precedence of all the nobility not of the blood royal, and is, by virtue of his office, nominally, a Privy Councillor, though, in modern times, never called upon to act in that capacity.

SUNDAY, 10th.

TWENTY-THIRD SUNDAY AFTER TRINITY.

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